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ABSTRACT

The rapid changes in the field of technology are redefining the process of developing technology-enhanced educational materials as well as the roles of developers involved in the process.The purpose of this study was to learn from practitioners the roles and responsibilities of an instructional designer in developing new media enhanced instructional materials. Instructional designers working at various multimedia companies in Austin, Texas were interviewed. The findings of this study identified four essential competencies for being an instructional designer in new media development: communication; instructional design; problem-solving/decision making; and knowledge of technology tools. The paper concludes that the job market for instructional designers will continue to grow and expand, and with it, the definition of an instructional designer will evolve at the same pace that the technology changes. Since the role of an instructional designer is affected by the possibilities that new technologies create daily and how technological tools aid communication, so shall each instructional designer contribute to the task of defining their profession. (AEF)

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The Challenge of Being an Instructional Designer for New Media Development: A View From the Practitioners

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THEORETICAL PERSPECTIVE

The rapid changes in the field of technology are redefining the process of developing technology-enhanced educational materials as well as the roles of developers involved in the process. As educators whose responsibility it is to prepare future designers and developers using new media, and as students who are about to enter the field of instructional design, we must continually update our knowledge and be aware of these changes. In our previous research (Liu, Jones & Hemstreet, 1998), we looked at the multimedia design process, and the different roles involved in the process from a practitioner's perspective. In this study, we chose to focus on the role of an instructional designer, one of the key players in new media development. We looked again to the practitioners in the field to find out how their roles are defined, how they handle their job challenges, and how they adapt to the fast changes of technology and market demands.

Instructional design refers to "the systematic process of translating principles of learning and instruction into plans for instructional materials and activities" (Smith & Ragan, 1993, p. 2). An instructional designer's task is to plan the instruction so that the student can use cognitive strategies to learn the material actively (West, Farmer, & Wolff, 1991). The term "instructional designer" is less familiar outside the field of instructional technology. Instead, one hears job titles such as industrial designer, curriculum developer, learning specialist, instructional technologist, or sometimes just project manager. Yet, people in these titles are often carrying the responsibilities of an instructional designer, especially if they are involved in developing new media-based instructional products. For some people, "instructional designer" does not say enough; "'multimedia producer,' 'webmaster,' 'developer of online learning' –these are much more muscular phrases"(Ganzel, 1997, ¶ 14).

The reality that an instructional designer might be called upon to get involved in different phases of producing an educational product could spark this confusion. As such, the instructional designer must understand the needs and wants of the client, the objective and the audience of the finished project, the capabilities of the programmer, graphic artist, and available tools; and must have design and project management skills (Liu, Jones, & Hemstreet, 1998). Job titles other than instructional designer reflect recent technological changes and new trends for creating instructional materials. If a person performing the role of an instructional designer is developing online courses, he or she may be classified as an online learning developer. Regardless of the job title, the role of an instructional designer "depends on the project, the composition of the team, and the skills of the team members. It's kind of a virtual job title for a very real job"(Jopson & Smith, 1997, p. 3). Since the role of an instructional designer has outgrown traditional textbook definitions, the perspectives of practitioners in the field will provide the information needed to accurately assess the evolving responsibilities of an increasingly popular position. Therefore, we are turning to the practitioners to provide this information for students who want to enter the field.

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PURPOSE OF THE STUDY

The purpose of this study is to learn from the practitioners the roles and responsibilities of an instructional designer in developing new media enhanced instructional materials. We are particularly interested in the challenges designers are facing and how they handle these challenges. We hope the findings will provide useful and practical information to students who are about to take on the responsibilities of an instructional designer. Our guiding research questions were:

1. What are instructional designers' responsibilities in the field of new media?
2. What challenges do instructional designers face?
3. How do instructional designers meet these challenges?
4. What skills are important for being a good instructional designer?

METHOD

About Interviewees and Procedure

To answer the research questions proposed, we interviewed instructional designers working at various multimedia companies in Austin, Texas. Using the multimedia directory compiled by the Texas Governor's Office of Music, Film, Television, and Multimedia Industries, we identified a list of multimedia companies in the Austin area. We selected companies that produce multimedia educational or training programs, and excluded one-person companies. Since we were interested in the role of an instructional designer, we limited the selection of interview subjects to those who shoulder the responsibilities of instructional designers. A total of eleven interviews were conducted with these individuals. These interviews ranged from 45 minutes to two hours.

All eleven interviewees were actively engaged in instructional design at the time of the interviews. Eight were female and three were male. One designer had a doctoral degree. Eight designers had a master's degree and two had a bachelor degree. Some had as many as 20 years of experience in designing and developing multimedia products while others had as few as just one year. Some designers worked for large technology companies while others worked for small multimedia shops. It was our hope that by looking at the designers working in different settings, we could gain a good understanding of the common challenges they face.

The Development of the Interview Questions

The development of the interview questions began with a survey to the graduate students enrolling in the Instructional Technology Program at the University of Texas - Austin. The survey's purpose was to identify the information and tips that future instructional designers wanted from the practitioners. We also modified and selected relevant interview questions from our previous research (Liu, Jones, & Hemstreet, 1998), which examined the multimedia design and development process from the practitioners' perspective. Combining the two sources of questions, we created and refined the list of interview questions for this study and ensured they would address the four research questions. A total of 141 interview questions were used. Part I of the questions focused on the role of an instructional designers (N=70), which was our primary focus. Part II of the questions (N=71) were used when an instructional designer also performed another role, which is often the case in the field. The questions on instructional designers addressed the following ten aspects: (1) background information, (2) roles and responsibilities, (3) design and production process, (4) interface, instructional, and interaction designs, (5) formative evaluation, (6) teamwork, (7) client, (8) prototype development, (9) personal, and (10) evaluation of instructional designers. Sample questions included: "What are your roles and main duties as an instructional designer?" "What are some major obstacles you face in doing your job?" and "What aspects of your job do you like the most?"

Data Analysis

The analysis of the data followed the guidelines by Miles and Huberman (1994). The interviews were first transcribed, then chunked, and coded. Two researchers independently coded the data. Codes were generated directly from the data through multiple passes of data examination. Two researchers then checked each other's coding and resolved any disagreement in the coding. A third researcher went through all the data and coding for any gaps, missing codes or inconsistency. During this process of checking and rechecking, the codes were refined, revised, and newly developed as emerging themes were added. Patterns from the data were extracted, and the relationships between the coded segments were compared and contrasted. The data were then sorted into categories and sub-categories according to their common themes and shared relationships.

RESULTS AND DISCUSSION

Role and Responsibilities of an Instructional Designer

Responsibilities. Our previous research, examining the multimedia design and development process from the practitioners' perspective, showed that the development process consisted of six main phases: (a) funding, (b) planning, (c) designing, (d) producing, (e) testing, and (f) marketing (Liu, Jones, & Hemstreet, 1998). The findings of our current study indicated that in this entire process of shaping an idea into a finished product, an instructional designer is heavily involved in the phases of planning and designing. They are also involved in the phases of producing and testing. Sometimes designers may also take on the responsibility of writing proposals and seeking funding. There are four major responsibilities an instructional designer performs: (1) working with a client; (2) working with a subject matter expert (SME); (3) working on the design; and (4) working with other members in a team. An instructional designer is often involved in the project from the beginning. He or she interacts with the client to understand what the client wants and works with the SMEs to understand the subject matter of the materials to develop.

Sometimes an instructional designer, working in another role such as a project manager, helps to secure a project. "Generally, I'll get the first contact with the potential client, so there's pre-work involved and just talking to them, finding out what they want, answering their questions, you know, up to the point where we actually have a proposal. 'This is what we propose to do for you' and they say 'yes.'" With a good understanding of the client's needs and the content, an instructional designer will develop a blueprint to be executed by other team members, such as programmers, artists, and video/audio specialists. Such a blueprint comes in the form of a design document which specifies the breakdown of the content, what will appear on each screen, and what media will be used. In short, the role of an instructional designer is to translate the client's needs into a plan that will be used to produce a product which meets the client's needs.

A Typical Day. What a typical day is like for an instructional designer working in the field of new media? We asked the interview subjects this question. Although it is clear that the days could vary from one project to another, some "typical" tasks they do in a day include: checking emails, having meetings, and working at a computer using some software. Here are a few responses to this question that capture what a day is like:

> First thing I do in the morning is check my email. Then I'll work on a project or start a project or maybe attend a meeting. Around [the] midday, [the] changes that I've made I either upload to the servers or I update the system that I'm working on. In the afternoon it's basic development. I'll do some research on what I'm doing. I'll try to collect documents, maybe read some material that's necessary for me to do my job, meet with people, things like that.

> First thing I do is check email before anything else, and usually voice mail at the same time. I might have some meetings based on that. Somebody's researching a project and I've worked on it so I've got to get them some information. Maybe there's a client meeting. Maybe I'm working on the proposal or a piece of the design.

Work Environment. "Fast-paced," "collaborative," "casual," and "flexible" are the adjectives the practitioners used to describe their work environments. Most designers are young, in their 20's and 30's. Their work is mostly driven by the projects and is fast-paced. When they are working on a project and facing a deadline, they typically work long hours as much as 60 per week or more. A designer must be a team player and a true collaborator, as these practitioners emphasized. A designer needs to be able to work with other designers and team members such as programmers, artists, and video/audio specialists. The work atmosphere is casual in general; few wear suits or ties. Some work in a large, open, studio-like space with music playing in the background. Others are allowed to play games as part of their workday to relax. Some work in physical offices while others work in a virtual office meeting face-to-face only when needed.

Job Satisfaction. What is the reward for being an instructional designer? For some, job satisfaction comes from the interaction with clients. "I love the clients, actually. I mean they cause the most frustrations but I love them." For some, it is the challenge of learning new tools and keeping up with the rapid changes. Others found it rewarding to be in a position where they had an opportunity to deal with multiple aspects of the development process. For many, however, their greatest gratification is in their ability to be creative--to develop a finished educational product from just an idea. One stated, "You have to be creative every single time to give the clients [what they're looking for]. That's a good spot to be in."

Approaches in Design. Although designers follow different models in their work, many emphasized the importance of "learning by doing," "providing experience," and "learning from mistakes" in approaching design. Some employ the techniques of simulations, scenarios, and storytelling, while others create games and puzzles. Engaging a learner through various interaction designs is emphasized. "[We] focus on providing software that will give the adults an opportunity to interact, where they're not just reading about it and clicking on the next button."

Software Tools used. Students in instructional technology often asked "do we need to know how to use software tools? If we do, what tools do we need to learn?" Our findings showed that it is not only necessary to have some hands-on experience with popular software tools, but it is also important to be proficient in a few. Although instructional designers use simple software such as *Microsoft Word* to write design documents, it is clear some designers, especially those who graduated more recently, are also able to use more sophisticated tools such as *Macromedia Director, Flash, Adobe Photoshop, Premiere, Java*, and *HTML*. Some pointed out that knowledge of these kinds of tools can help them quickly put together a prototype to demonstrate design ideas to the client. "We have at least one designer who is very well versed in *Flash*, and no matter what she does, she's going to put it together in *Flash*. She puts together a model of instructional design in *Flash*. I tend to be a *Director* guy. If I'm trying to say this is what I want to be animated, I'll slap it together….I can show that to an artist or show it to an audience member or learner and say do you understand this, does this get the message across?" Others said that such knowledge enables the designers to participate in other tasks such as programming or creating graphics when needed. Being flexible and versatile proves very valuable in a small company when one person often wears multiple hats (Liu, Jones, & Hemstreet, 1998).

Challenges of Being an Instructional Designer

Based upon the interviews, it appears that three of the biggest challenges confronting a new media designer arise in dealing with clients, balancing multiple roles, and adapting to rapid technological changes.

Working with a Client. An important task of being an instructional designer is to determine what clients really need, since they may not be familiar with the design process itself. Some clients need assistance in producing a clear definition of the problem they are trying to solve. Other clients may not be aware of the steps and tasks that a designer takes to get to the end product.

Some clients expect the designer to start from scratch and create a polished product within a short time, without providing necessary input. "One of the biggest challenges is... that the people... only want to see the end product. And they expect you to develop something out of nothing. They sometimes don't have the understanding of the development time necessary..." Being able to get feedback from the client and the SMEs about the product throughout the design process is a skill an instructional designer must acquire. Many clients new to the field of new media have an oversimplified view of the design process necessary to tailor a traditional product into a new media concept.

Many of the designers we interviewed keenly felt the responsibility of walking the clients through the process and teaching them along the way. "You have to continue to educate others in what's involved in doing this job," noted one. This education includes explaining the design and production process, helping the clients define the scope of the problem, learning goals, audience, and outcomes. A designer should be able to ask a lot of questions. In addition, a designer should be aware that the client may not be familiar with the industry jargon. Designers should explain the terminology to the client, or simply use everyday language. When instructional designers speak of objectives, goals, entry-level skills and the like, clients often need to hear these terms clarified. As one designer stated, "There's some kind of bridge building time where you figure out what are you really saying."

Another important aspect of this educational process is to help the client make the right design decisions depending on a project's needs. Clients sometimes do not understand the difference between an instructional/training module and merely information presentation. They may want to use multimedia when there is no need to do so. A designer should be able to discuss knowledgeably the possibilities of various technologies and help the client make the appropriate choice. "Sometimes my process in working with a client is to say, I don't think you really need training. I think you're just talking about documentation here." A client also needs to be informed that design decisions will have an impact on the production. For example, a decision of what media to use in the product will affect the cost, and a change in such a decision later in the process may increase the production cost.

When resources and budget are limited, a designer should help the client prioritize what is most important for the instructional value of the product and not be constrained by what media to use. Although the clients usually have the final say in any design decisions as they pay for the development and often know the market better, the designers should offer their "best judgment" based on their expertise, and make sure the clients understand their position, especially in the case of disagreement.

Balancing Multiple Roles. Although many textbooks on instructional design often separate the roles of instructional designer and project manager, the practical experience of the interview participants showed that seldom is one's role limited to that of a designer. About half of the participants were also project managers or performed duties normally associated with that position in addition to being an instructional designer. One stated, "my heaviest responsibility is in ... getting teams up and running, ..." Another said, "...depending on what the project is, how big it is, I'll start assembling the people who I want to work on that one...But I'll continue to be the primary client contact as far as letting them know how it's going."

As part of a team, designers are often called upon to review others' work, find clients, write scripts for video and audio clips, write programming codes, write technical documents, create animation and graphics, work on character development, and train others. That is, an instructional designer in new media often performs multiple roles depending on a project's needs. Many smaller companies require designers to have different skills to maintain efficiency and low cost of operation. Some designers feel it is important to "be able" to do everything, even if they do not end up doing it all. It is interesting to note that within all of these responsibilities lies a main objective

that may tie all the roles together. As one participant put it, "I'm trying to help people understand where we are now, and where we need to go, and help arrive at a formula for getting there."

Adapting Oneself to Technological Changes. Rapid technological advances continuously bring changes and new requirements to the field of instructional design. "[Instructional] design is going to evolve as technological capability evolves." One designer commented, "designers [in her company] will need to be extremely proficient in *Adobe Acrobat*, some *HTML* and [*Microsoft*] *Access*. We will need to understand technology on a higher level because our business is changing and expanding so rapidly." A designer must not only be able to meet multiple responsibilities and perform different roles in a team, but also keep abreast of these technological changes. He or she must stay very flexible in order to adapt to changes quickly and continuously gain new skills to be competitive. A good designer is a life long learner, who sees the changes, and is willing to adjust herself to the changes so as to produce better products for the audience. The participants mentioned the challenges they faced daily in producing educational products using new technological tools, and the need to stay on top of the field. Their education and experience prepared them to some extent. However, as they emphasized, they must keep learning to stay current. "Really in keeping up with the field is just hard work…You just gotta read and read and read, and you have to care about it."

Meeting the Challenges

Staying on Top of the Field. An important question to these designers is "How do you address the challenges and stay current?" Their formal education in instructional design equipped them with some needed knowledge with hands-on courses being particularly valuable. Their varied backgrounds in graphic art, video production, programming, and teaching helped lay down a solid foundation for being a good designer. Some pointed out that the experience gained from working on numerous projects, and performing different roles in a project helped them learn to be flexible and adapt quickly to new situations.

While on the job, these practitioners try to keep up with changes by taking additional college classes, attending conferences and training, having informal meetings within their company where people share what they have learned, studying products from their competitors, maintaining university connections and involvement, and even learning from the clients.

Attributes of a Good Instructional Designer. The practitioners discussed different qualities a designer should possess. Of those mentioned attributes, there is a consensus that a good designer should be (1) a quick study who is willing to learn new things; (2) a team player who can work with others well; (3) attentive to details; and (4) a good communicator both orally and in writing. Apart from these, the practitioners mentioned they would also look for people who have experience and are self reliant, resourceful problem-solvers. Finally, they want to hire individuals who not only "know what they're talking about," but also are "passionate about what they do."

Advice to Newcomers. Given the challenges of being an instructional designer, what can students do to prepare themselves for the field of instructional design? Besides taking classes and getting a degree, the designers offered the following practical advice:

- Seek out to gain a variety of experiences.
- Be open to new ideas and familiar with the capabilities of technological tools.
- Learn to write well.
- Enjoy what you do.

CONCLUSION

It is clear that an instructional designer plays a critical role in developing new media-based instructional products. In support of other research (International Board, 1998; Le Maistre, 1998;

Liang, 1999; Liu, Jones, & Hemstreet, 1998; Moallem, 1998), the findings of this study identified four essential competencies for being an instructional designer in new media development:

1. Communication: A good designer should have excellent "people" skills and be able to communicate effectively with clients, SMEs, and other team members both verbally and in writing.
2. Instructional design: A good designer should be well-versed in several instructional design models and strategies from which to choose a case-specific process. He or she should keep up with new education or training theories and research to apply them in the product development.
3. Problem-solving/decision making: The process of developing a quality new media product is full of challenges along the way. A good designer should be able to perform multiple responsibilities, step into new roles when necessary, and overcome obstacles under a deadline. A good designer is a problem-solver.
4. Knowledge of technology tools: A good instructional designer should have a basic knowledge of important software tools used in the field and be aware of newly advanced tools as they become available.

The job market for instructional designers will continue to grow and expand, and with it, the definition of an instructional designer will evolve at the same pace that the technology changes. Since the role of an instructional designer is affected by the possibilities that new technologies create daily and how technological tools aid communication, so shall each instructional designer contribute to the task of defining their profession. Therefore, it was to these practicing instructional designers that this study turned in order to understand the evolving responsibilities, expectations, and challenges of today's instructional designers.

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